

Amendments to the Claims

1. (Currently Amended) Cooling device (1) for a fuel-recirculation circuit from the injection system to the tank of a motor vehicle, which has a first opening (8) and a second opening (8) for connection to said recirculation circuit and comprises a pipe (2) having a side wall (5) and a finned radiant body (4) in a relationship of heat exchange with said pipe (2), end couplings (6) connected hermetically to said pipe (2), an elongated body (14) housed in a through cavity (3) defined by said pipe (2), projections (15) radially interposed between said pipe (2) and said elongated body (14) to define internal passages traversed by said fuel, characterized in that said elongated body (14) is made of polymeric material and is interference fitted in said through cavity (3), in that said projections (15) are integrally formed on at least one of said pipe (2) and said elongated body (14), and in that said end couplings (6) are connected to said pipe (2) only.

2. (Currently Amended) The cooling device according to Claim 1, characterized in that said radiant body (4) comprises a plurality of fins (10) that are longitudinal with respect to said pipe (2).

3. (Currently Amended) The cooling device according to Claim 2, characterized in that said longitudinal fins (10) are arranged in spoke-like fashion with respect to said pipe (2).

4. (Currently Amended) The cooling device according to ~~any of the preceding~~ Claims 1, characterized in that said elongated body (14) is coaxial to said pipe (2).

5. (Currently Amended) The cooling device according to ~~any of the preceding~~ ~~e~~Claims 1, characterized in that said elongated body (14) has at least one tapered end (11).

6. (Currently Amended) The cooling device according to ~~any of the preceding~~ ~~e~~Claims 1, characterized in that said elongated body (14) carries said projections (15) in contact with said side wall (5) of said pipe (2), thus defining said internal passages.

7. (Currently Amended) The cooling device according to ~~any of e~~Claims 1 to 5, characterized in that said pipe (2) carries said projections (15) in contact with said elongated body (14), thus defining said internal passages.

8. (Currently Amended) The cooling device according to ~~any of the preceding~~ ~~e~~Claims 1, characterized in that said elongated body (14) has a circular cross section.

9. (Currently Amended) The cooling device according to ~~any of the preceding~~ ~~e~~Claims 1, characterized in that said projections (15) are helical.

10. (Currently Amended) The cooling device according to ~~any of e~~Claims 1 to 8, characterized in that said projections (15) are longitudinal.

11. (Currently Amended) The cooling device according to ~~any of the preceding~~ ~~e~~Claims 1, characterized in that said at least one coupling (6) comprises a substantially conical portion housing a respective end (11).

12. (Currently Amended) Method for manufacturing a cooling device (1) for a fuel-recirculation circuit from the injection system to the tank of a motor vehicle, which has a first

opening (8) and a second opening (8) for connection to said recirculation circuit a finned radiant body (4), a pipe (2) carried by said finned radiant body (4) in a relationship of heat exchange with said radiant body (4), and guide means (7) for guiding the flow of fuel, said guide means (7) being housed in said pipe (2) in order to define at least one path of flow of said fuel adjacent to a side wall of said pipe (2), said method ~~being characterized by the fact of~~ comprising the following steps:

- [-] manufacturing said finned radiant body (4) by an extrusion process;
- [-] mounting with an interference fitting said guide means (7) into said pipe (2); and
- [-] hermetically connecting to said pipe (2) a first and a second coupling (6) respectively defining said first and second openings (8).